



---

# CAPITAL IMPROVEMENT PROGRAM

# Corvallis Municipal Airport

AIRPORT MASTER PLAN

Corvallis, Oregon

## Capital Improvement Program

The analyses completed in previous chapters evaluated development needs at the airport over the next 20 years and beyond, based on forecast activity and operational efficiency. Next, basic economic, financial, and management rationale is applied to each development item so that the feasibility of each item contained in the plan can be assessed.

The presentation of the capital improvement program (CIP) has been organized into two sections. First, the airport development schedule and CIP cost estimate is presented in narrative and graphic form. Second, capital improvement funding sources on the federal, state, and local levels are identified and discussed.

### ***AIRPORT DEVELOPMENT SCHEDULES AND COST SUMMARIES***

Now that the recommended concept has been developed and specific needs and improvements for the airport have been established, the next step is to determine a realistic schedule (implementation timeline) and associated costs for the plan. This section will examine the overall cost of each project identified in the capital improvement program (CIP) and present a development schedule. The recommended improvements are grouped by planning horizon: short term, intermediate term, and long term. The short term planning horizon is further subdivided into yearly increments. **Table 6A** summarizes key activity milestones for the three planning horizons.



<b>TABLE 6A</b> <b>Planning Horizon Summary</b> <b>Corvallis Municipal Airport</b>				
	<b>Base Year 2011</b>	<b>Short Term</b>	<b>Intermediate Term</b>	<b>Long Term</b>
<b>Based Aircraft</b>	156	167	177	200
<b>ANNUAL OPERATIONS</b>				
<b>General Aviation</b>				
Itinerant	26,050	27,800	29,300	32,800
Local	26,050	27,800	29,300	32,800
Subtotal	52,100	55,600	58,600	65,600
<b>Air Taxi Activity</b>				
Itinerant	3,579	4,100	4,400	5,200
<b>Military Activity</b>				
Itinerant	400	400	400	400
<b>TOTAL OPERATIONS</b>	<b>56,079</b>	<b>60,100</b>	<b>63,400</b>	<b>71,200</b>
<i>Source: Coffman Associates analysis</i>				

A key aspect of this master plan is the use of demand-based planning milestones. Many projects should be considered based on actual demand levels within the next five years. As short term horizon activity levels are reached, it will then be time to program for the intermediate term based upon the next activity milestones. Similarly, when the intermediate term milestones are reached, it will be time to program for the long term activity milestones.

Many development items included in the recommended concept will need to follow these demand indicators. For example, the plan includes construction of new aprons and taxilanes. Based aircraft will be the primary indicator for these projects. If based aircraft growth occurs as projected, additional hangars should be constructed to meet the demand. Often this potential growth is tracked with a hangar waiting list.

If growth slows or does not occur as forecast, some projects may be delayed. As a result, capital expenditures will be made on an as-needed basis, which leads to a more responsible use of capital assets.

Construction of hangars is typically undertaken by the airport sponsor or by private developers. In recent years, all new hangar construction at the airport has been privately financed with the developer paying a ground lease for the site. For purposes of this master plan, all hangar construction will be assumed to be undertaken by private developers. The airport sponsor's responsibility, related to new hangars, is to provide public access taxilanes, typically in conjunction with FAA development grants.

The airport sponsor can construct hangars and act as the lessor, as they do on the existing city-owned hangars. The economics of hangar construction and leasing over the last decade have made it difficult to amortize a 20-year loan on facilities while charging a reasonable monthly rent. This is the case across the country where local airport sponsors are relying increasingly on private developers to build facilities at airports. Nonetheless, some airport sponsors see a benefit to building hangar facilities in order to stimulate aviation activity and business development, even if the monthly rents have to be subsidized to some degree. Natural-

ly, this will be a local decision and nothing in this master plan and development schedule should be construed to indicate that only private developers can construct facilities at the airport.

Some development items do not depend specifically on demand. Safety-related projects should be programmed in a timely manner regardless of the forecast growth in activity. Other items, such as pavement maintenance, should be addressed in a scheduled manner and are not dependent on reaching aviation demand milestones. These types of projects typically are more associated with day-to-day operations.

As a master plan is a conceptual document, implementation of the capital projects should only be undertaken after further refinement of their design and costs through architectural and engineering analyses. Moreover, some projects may require additional infrastructure improvements (i.e., drainage improvements, extension of utilities, etc.) that may take more than one year to complete.

Once the list of necessary projects was identified and refined, project-specific cost estimates were developed. The cost estimates include design, engineering, construction administration, and contingencies that may arise on the project. Capital costs presented here should be viewed only as estimates subject to further refinement during design. Nevertheless, these estimates are considered sufficient for planning purposes. Cost estimates for the larger projects were provided by Precision Approach Engineers, the current consulting engineering firm familiar with airport construction costs in the area. The detail on these estimates is provided in **Appendix F**. Cost estimates for each of the development projects in

the CIP are in current (2012) dollars. **Exhibit 6A** presents the proposed CIP for Corvallis Municipal Airport. **Exhibit 6B** presents the CIP overlaid onto the airport aerial photograph and broken out into planning horizons.

The FAA utilizes a national priority ranking system to help objectively evaluate potential airport projects. Projects are weighted toward safety, infrastructure preservation, standards, and capacity enhancement. The FAA will participate in the highest priority projects before considering lower priority projects, even if a lower priority project is considered a more urgent need by the local sponsor. Nonetheless, the project should remain a priority for the airport and funding support should continue to be requested in subsequent years.

The following sections will describe in greater detail the projects identified for the airport over the next 20 years. The short term (0-5 years) projects are presented in yearly increments. The intermediate (years 6-10) and long term (years 10-20) are grouped by local priority.

## **SHORT TERM IMPROVEMENTS**

The projects identified for the short term planning period have been prioritized based on airport need and potential to be funded. If any of these projects cannot be funded in the timeframe indicated, the airport sponsor should consider the project for the following year.

### **2013 Projects**

There is an area of regularly standing water on the airport located just north of the

intersection of Taxiways A and B that attracts frequent activity by wildlife including large migratory birds such as ducks and geese. As this location is adjacent to the approach to Runway 17, the airport would like to fill-in this area to make the area unattractive to wildlife. Prior to filling the area, a wetland determination will need to be made. Therefore, a project is identified to conduct this study. The result of the study may be a need to provide wetland mitigation at another location off airport property.

The airport conducted a similar study for portions of the Airport Industrial Park which led to the issuance of a removal/fill permit. This permit allows development of the industrial park.

The airport has in the past provided funds for mitigation of wetlands at a location that preserves wetlands south of Junction City, OR. The mitigation cost was approximately \$60,000 per acre of wetland to be disturbed. The subject area at the airport is approximately two acres. A similar mitigation process may be necessary to fill the area on the airport.

The airport has regular, near daily, activity by two air cargo operators (FedEx and UPS). Currently, these aircraft are loaded and unloaded on the main apron near the fuel farm. An extension of the main apron to the west is planned to facilitate air cargo activity in the future. The access road to this area is also planned for improvement.

The WWII era hangar is more than 60 years old and is in need of significant repairs. An estimate for initial repair costs has been provided. The airport sponsor would be responsible for the repairs to the hangar as grant funds from the FAA

(beyond entitlement funds) are not available for hangar repairs.

## **2014 Projects**

As an airport with over 100 based aircraft and an airport that experiences frequent business jet activity, it should have full taxiway edge lighting. The next short term project is to add taxiway edge lighting to those portions of Taxiways A and C that do not currently have edge lighting. This is a safety-related project and would have a high priority for the grant funding.

Note: During FAA review of the airport layout plan, the FAA identified that Taxiway C crosses Runway 9-27 within the high-energy area, which is the middle third of a runway. New FAA design standards which took effect on September 28, 2012, and are included in the Advisory Circular (AC) 150/5300-13A, indicate that high-energy taxiway crossings of a runway should be avoided. The FAA-approved scope of services for the Corvallis Municipal Airport Master Plan indicates that the previous AC 150/5300-13, Change 17, would be utilized for development of the master plan. To comply with the FAA's request, a note has been placed on the ALP to indicate that Taxiway C would be closed at some point in the future.

An associated project is the acquisition of a back-up generator for the airfield lights. Currently, if there is a disruption of electricity at the airport, then the airfield lights become inoperable.

Some larger general aviation airports, such as Corvallis Municipal Airport, will install security cameras to protect the public and private investments at the air-

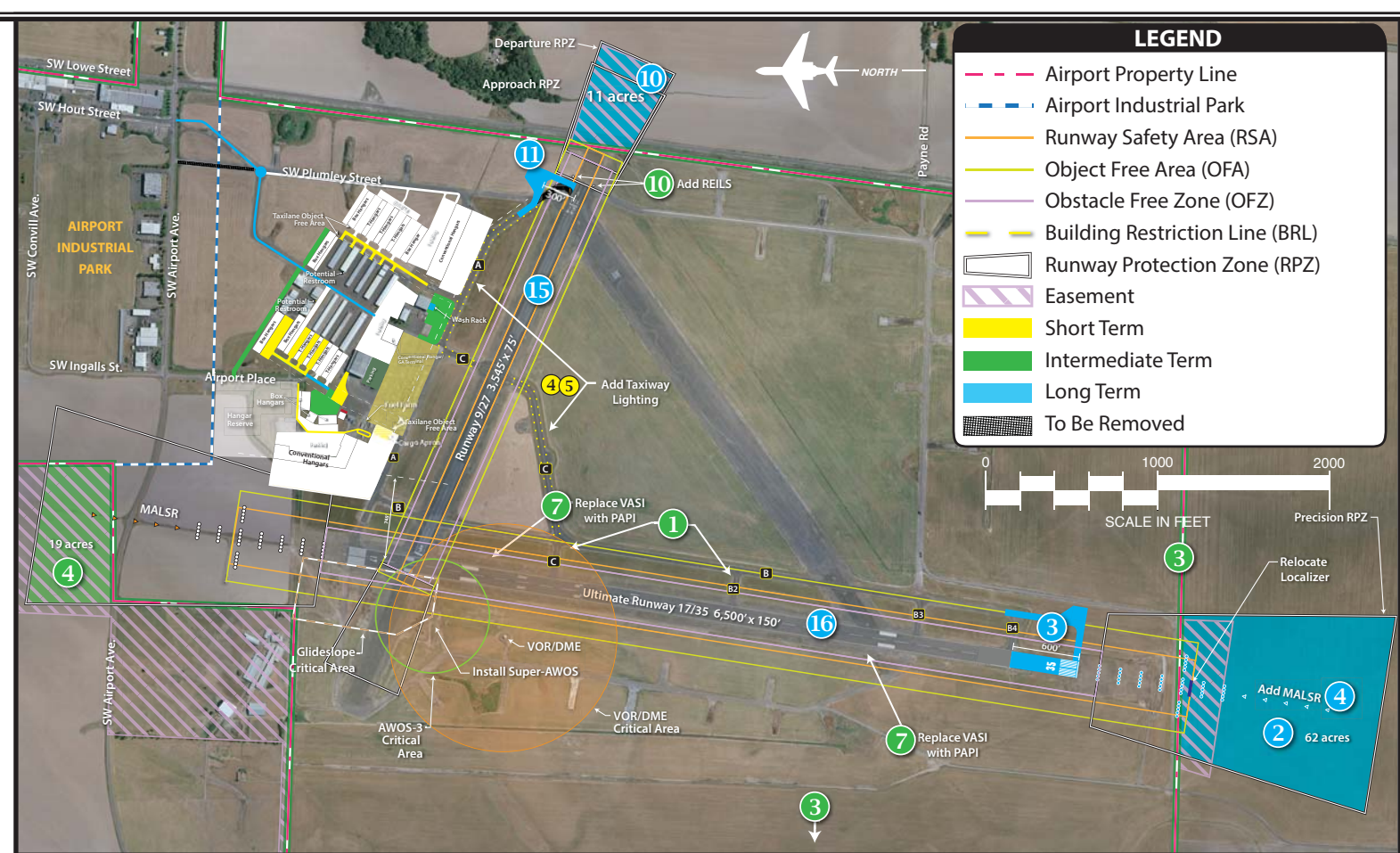
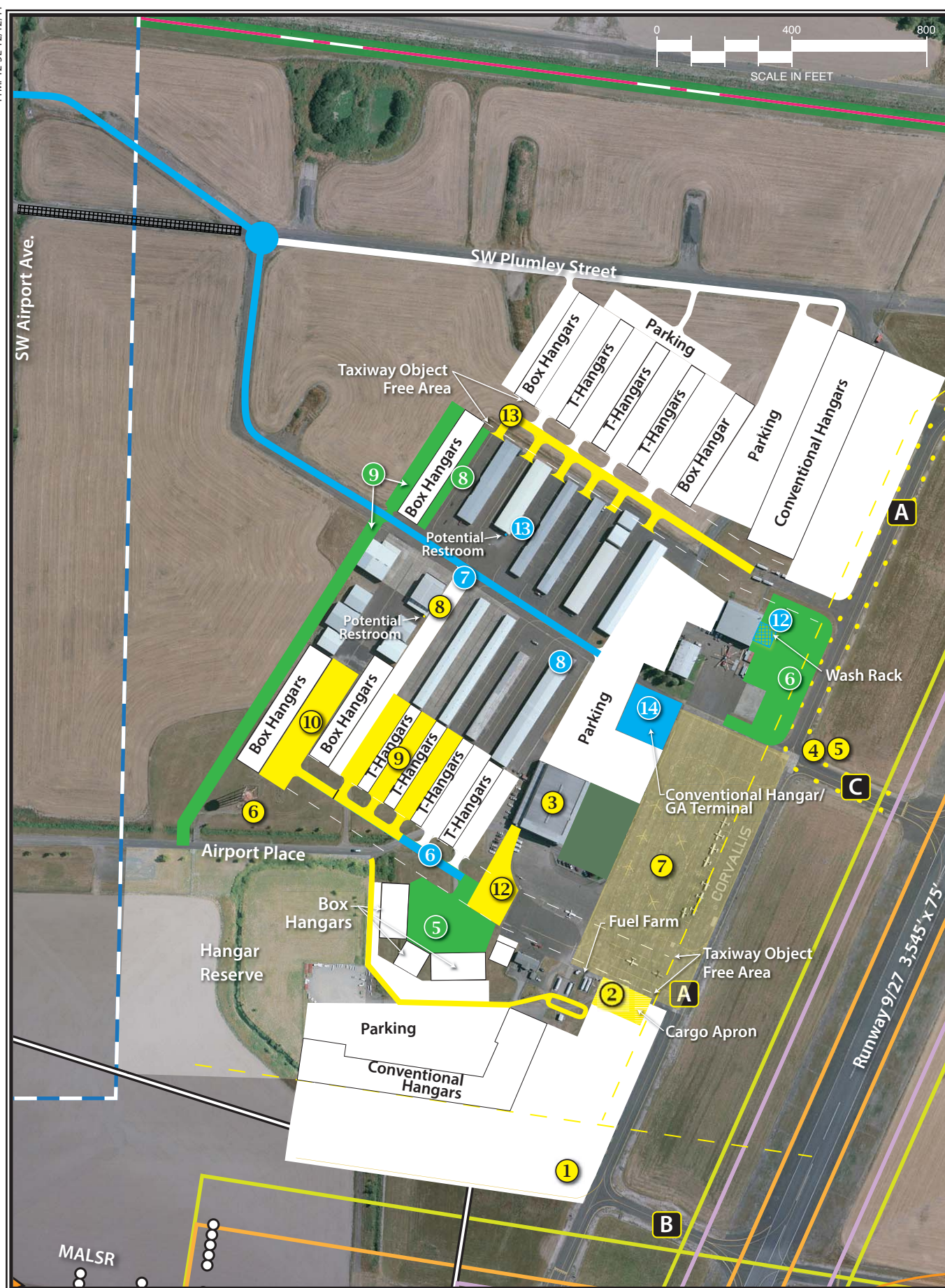


PROJECT ID	PROJECT DESCRIPTION	2012 Project Cost Estimate	FAA Eligible	Local Share
<b>SHORT TERM PROGRAM (0-5 YEARS)</b>				
<b>2013</b>				
1	Wetlands Delineation/Mitigation East of Rwy 17 Threshold	\$180,000	\$162,000	\$18,000
2	Cargo Apron/Road Paving	\$709,000	\$638,100	\$70,900
3	WWII Era Hangar Rehabilitation	\$569,000	\$0	\$569,000
<b>2013</b>	<b>TOTAL</b>	<b>\$1,458,000</b>	<b>\$800,100</b>	<b>\$657,900</b>
<b>2014</b>				
4	Taxiway A&C Edge Lighting	\$600,000	\$540,000	\$60,000
5	Airfield Lighting Backup Generator	\$200,000	\$180,000	\$20,000
6	Security Cameras	\$20,000	\$0	\$20,000
7	Main Apron Reconstruction	\$6,170,000	\$5,553,000	\$617,000
8	Tenant Restroom	\$120,000	\$0	\$120,000
<b>2014</b>	<b>TOTAL</b>	<b>\$7,110,000</b>	<b>\$6,273,000</b>	<b>\$837,000</b>
<b>2015</b>				
9	Construct T-hangar Taxilane Stubs	\$510,000	\$459,000	\$51,000
10	Construct Box Hangar Taxilane Stubs	\$300,000	\$270,000	\$30,000
<b>2015</b>	<b>TOTAL</b>	<b>\$810,000</b>	<b>\$729,000</b>	<b>\$81,000</b>
<b>2016</b>				
11	Environmental Documentation for Eastside Taxilane	\$50,000	\$45,000	\$5,000
<b>2016</b>	<b>TOTAL</b>	<b>\$50,000</b>	<b>\$45,000</b>	<b>\$5,000</b>
<b>2017</b>				
12	Apron Expansion (REACH area)	\$400,000	\$360,000	\$40,000
13	Construct Eastside Taxilane	\$480,000	\$432,000	\$48,000
<b>2017</b>	<b>TOTAL</b>	<b>\$880,000</b>	<b>\$792,000</b>	<b>\$88,000</b>
<b>TOTAL SHORT TERM PROGRAM</b>		<b>\$10,308,000</b>	<b>\$8,639,100</b>	<b>\$1,668,900</b>
<b>INTERMEDIATE TERM PROGRAM (6-10 YEARS) (2018-2022)</b>				
1	Replace Airfield Signage	\$520,000	\$468,000	\$52,000
2	Wildlife Hazard Assessment	\$73,000	\$65,700	\$7,300
3	Perimeter Fence	\$610,000	\$549,000	\$61,000
4	Acquire Runway 17 RPZ Property (19 acres)	\$230,000	\$207,000	\$23,000
5	Public Apron for Box Hangars	\$570,000	\$513,000	\$57,000
6	Main Apron Public Expansion	\$650,000	\$585,000	\$65,000
7	Replace VASI with PAPI Runway 17-35	\$240,000	\$216,000	\$24,000
8	Box Hangar Pavement	\$260,000	\$234,000	\$26,000
9	Hangar Parking/Through Road	\$260,000	\$234,000	\$26,000
10	Runway 27 REILs	\$110,000	\$99,000	\$11,000
<b>TOTAL INTERMEDIATE TERM PROGRAM</b>		<b>\$3,523,000</b>	<b>\$3,170,700</b>	<b>\$352,300</b>
<b>LONG TERM PROGRAM (11-20 YEARS) (2023-2032)</b>				
1	Environmental Documentation for Rwy Extension	\$250,000	\$225,000	\$25,000
2	Acquire Land for Runway 17-35 extension (62 ac)	\$740,000	\$666,000	\$74,000
3	Extend Runway/Taxiway 35 by 600'	\$1,390,000	\$1,251,000	\$139,000
4	Add MALSR	\$2,000,000	\$1,800,000	\$200,000
5	Environmental Documentation for West Side Taxilane	\$50,000	\$45,000	\$5,000
6	Connect West Side Taxilane	\$110,000	\$99,000	\$11,000
7	Convert Center Taxilane to Airport Entrance Road	\$210,000	\$189,000	\$21,000
8	Reconfigure Hangar Door	\$20,000	\$18,000	\$2,000
9	Master Plan Update	\$250,000	\$225,000	\$25,000
10	Acquire Runway 27 RPZ Property (11 acres)	\$160,000	\$144,000	\$16,000
11	Reconstruct Taxiway A at Runway 27 Threshold	\$500,000	\$450,000	\$50,000
12	Wash Rack and Oil Separator	\$80,000	\$72,000	\$8,000
13	Tenant Restroom	\$120,000	\$0	\$120,000
14	GA Terminal Building	\$1,500,000	\$0	\$1,500,000
15	Runway 9-27 Rehabilitation	\$770,000	\$693,000	\$77,000
16	Runway 17-35 Rehabilitation	\$2,760,000	\$2,484,000	\$276,000
<b>TOTAL LONG TERM PROGRAM</b>		<b>\$10,910,000</b>	<b>\$8,361,000</b>	<b>\$2,549,000</b>
<b>TOTAL PROGRAM COSTS</b>		<b>\$24,741,000</b>	<b>\$20,170,800</b>	<b>\$4,570,200</b>

Note: Totals may not equal due to rounding

Source: Coffman Associates and Precision Approach Engineers





### SHORT TERM (Years 1-5)

- 1 Wetlands Delineation/Mitigation East of Runway 17 Threshold
- 2 Cargo Apron/Road Paving
- 3 WWII Era Hangar Rehabilitation
- 4 Taxiway A&C Edge Lighting
- 5 Airfield Lighting Backup Generator
- 6 Security Cameras
- 7 Main Apron Reconstruction
- 8 Tenant Restroom
- 9 Construct T-Hangar Taxilane Stubs
- 10 Construct Box Hangar Taxilane Stubs
- 11 Environmental Documentation for Eastside Taxilane - NP
- 12 Apron Expansion (REACH area)
- 13 Construct Eastside Taxilane

### INTERMEDIATE TERM (Years 6-10)

- 1 Replace Airfield Signage
- 2 Wildlife Hazard Assessment - NP
- 3 Perimeter Fence
- 4 Acquire Runway 17 RPZ Property (19 acres)
- 5 Public Apron for Box Hangars
- 6 Main Apron Public Expansion
- 7 Replace VASI with PAPI Runway 17-35

### INTERMEDIATE TERM (cont.)

- 8 Box Hangar Pavement
- 9 Hangar Parking/Through Road
- 10 Install REIL on Runway 27 End

### LONG TERM (Years 11-20)

- 1 Environmental Documentation for Rwy Extension - NP
- 2 Acquire Land for Runway 17-35 extension (62 ac)
- 3 Extend Runway/Taxiway 17-35 by 600' to the south
- 4 Add MALSR
- 5 Environmental Documentation for West Side Taxilane - NP
- 6 Connect West Side Taxilane
- 7 Convert Center Taxilane to Airport Entrance Road
- 8 Reconfigure Hangar Door
- 9 Master Plan Update - NP
- 10 Acquire Runway 27 RPZ Property (11 acres)
- 11 Reconstruct Taxiway A at Runway 27 Threshold
- 12 Wash Rack and Oil Separator
- 13 Tenant Restroom
- 14 GA Terminal Building
- 15 Runway 9-27 Rehabilitation
- 16 Runway 17-35 Rehabilitation

NP = Not Pictured





port. The airport has explored installing at least two such cameras. At present, such security measures are not eligible for FAA grant funding through the AIP program.

The main apron is in need of reconstruction. This original pavement was constructed more than 60 years ago. Over the years, the pavement has been maintained and repaired but it is time to program a replacement project. In fact, the airport capital improvement program has included this project in years past. The project to reconstruct the 36,000 square yard apron is planned for the 2014 timeframe.

Airport management has received numerous requests for restroom facilities to be located in the hangar development area. Such a facility is not eligible for FAA development funds and would be the responsibility of the city. The restroom facility is planned at an open space between two of the box hangars. This would eliminate the need for tenants to walk to the FBO offices.

## **2015 Projects**

As demand dictates and the need for more aircraft storage hangar space increases, the taxilanes will need to be extended to accommodate that growth. The area in the northwest of the existing development area is available for expansion. This project considers expanding the box hangar taxilane to allow for additional hangar development. The taxilanes for T-hangars are also planned to be extended.

It should be noted that the airport has required private developers to construct the access taxilane for the box hangars. Since taxilanes are typically a lower prior-

ity for the FAA, it is likely that private developers will still be responsible for the taxilane access.

## **2016 Projects**

An environmental review will be necessary prior to the construction of the east side taxilane. If the project cannot be categorically excluded, then an environmental assessment may be necessary. The results of the environmental documentation are valid for three years after completion.

## **2017 Projects**

The first project considered for 2017 is an expansion of the northwest corner of the main apron. This project will square up the apron, reducing the potential for aircraft to inadvertently stray from the pavement surface. In addition, this new pavement could be utilized on a temporary basis for air cargo loading and unloading until such a time that a permanent air cargo apron can be programmed.

The next project is the construction of the planned east side taxiway. This taxiway would provide a secondary access point to the hangar development area. The east side taxilane must be completed before the west side taxilane in order to preserve public access to the WWII era hangar and the FBO operations. The east side taxilane is planned on the east side of the hangar referred to as the HTSI hangar. As a result, public access to the hangar (and the Mary's Peak hangar) would be restricted to authorized personnel only (airport administration and tenants). The most likely method of granting access to the hangars would be through a key card gate entrance.



## **Short Term Summary**

The short term projects address several immediate concerns on the airside including upgrading the weather observation equipment, mitigating wetlands near the approach to Runway 17, and providing full taxiway lighting. The short term projects also address growing demand for hangar space by programming extensions of the taxilanes.

The short term projects total approximately \$10.31 million. Approximately \$8.64 million is eligible for FAA grant funding. The remaining \$1.67 million would be the responsibility of the local airport sponsor.

## **INTERMEDIATE TERM IMPROVEMENTS**

In order to provide maximum flexibility to the airport when programming capital projects, the intermediate term projects have been grouped and generally include those projects that may be needed in years six through ten. Airport management should regularly assess the need for these projects based on actual demand and growth at the airport.

The airfield signs including taxiway and runway identification signs are more than 20 years old. They utilize older and less efficient incandescent lighting, which leads to more frequent replacement. Modern airfield signs utilize longer lasting LED lighting. Therefore, a project is programmed to replace all the airfield signage.

In recent years, the FAA has placed a higher emphasis on prevention of bird strikes. The most notable example is the "Miracle on the Hudson" when a passen-

ger aircraft experienced complete engine failure forcing the pilot to land in the Hudson River in New York City. The FAA has issued directives to all commercial service airports to conduct Wildlife Hazard Assessment and Wildlife Management Plans, if necessary, to increase the safety of aircraft. Under certain circumstances, general aviation airports are also required to conduct such studies. Currently, Corvallis Municipal Airport is not required to conduct a Wildlife Hazard Assessment but in the future one may be required.

The airport has effective perimeter fencing in the terminal area that extends to the northwest and to the southeast. Approximately 16,000 linear feet of airport property is not protected by perimeter fencing. Completion of the perimeter fencing, with two access gates is planned for the intermediate planning horizon.

The FAA recommends that airports own RPZ lands that currently extend beyond airport property. The highest RPZ property acquisition would be 19 acres of the Runway 17 RPZ that is not currently owned by the airport.

To the west of the WWII era hangar and immediately north of the air ambulance operation is a planned area for individual box hangars. As shown on the exhibit, this area would accommodate up to five hangars. An apron encompassing approximately 6,700 square yards is planned for this area. Since this apron area is planned for public use, it is eligible for FAA funding.

An expansion of the main apron is planned to the east. This apron expansion would encompass approximately 8,100 square yards. This apron would be pri-

marily utilized for aircraft tie-down positions.

Additional tie-down positions would be needed as nine positions would be lost when converting the west edge of the main apron to a taxilane to access the box hangar area and ultimately the west side of the existing T-hangar and box hangar area.

Many airports around the country are upgrading their VASI approach lighting systems with PAPIs. This project considers replacing the VASIs with PAPIs at the airport. It should be noted that the VASIs are currently owned and maintained by the FAA. If AIP funds are utilized for the upgrade, then the airport would become responsible for maintenance.

The area to the north of the east side hangars is available for new hangar development. A row of box hangars is planned for this location. The airport is currently including this area in on-going environmental analysis so the area would be ready for hangar development. A small strip of pavement would be needed to provide adequate separation from the other hangar.

The master plan includes dedicated vehicle parking for planned hangars where possible. The north side of the development area is identified for box hangars. Adjacent to the current and planned box hangars is a planned through-road that connects Plumley Place and Airport Place.

The future plan calls for a non-precision instrument approach to Runway 27. To aid pilots in visually locating the runway threshold, runway end identifier lights (REILs) are planned in conjunction with the improved instrument approach.

The intermediate term projects total approximately \$3.52 million. Approximately \$3.17 million is eligible for FAA grant funding with approximately \$350,000 being the responsibility of the airport sponsor.

## **LONG TERM IMPROVEMENTS**

Long term projects are those planned for years 11-20. Again, these projects are grouped as demand could shift over time. In fact, the need for these projects could be accelerated if exceptional growth occurs at the airport. The major capital project considered in the long term is the construction of a 600-foot extension of Runway 35 to the south. As previously noted, the extension will have to be justified by specific users of specific aircraft (long haul business jets).

Prior to construction of the runway extension, an environmental documentation will need to be undertaken. If the project cannot be categorically excluded, then an environmental assessment must be undertaken.

Extension of the runway will push the RPZ further beyond airport property. Approximately 62 acres is recommended to be acquired. In conjunction with the runway extension a CAT-I instrument approach is planned. This requires an approach lighting system similar to the MALSR currently on the Runway 17 end. The localizer antenna will also have to be relocated farther to the south, outside the RSA.

The long term plan calls for two new taxilanes leading to the hangar development: One on the east side and one on the west side. The east side taxilane is planned in

the short term and would, therefore, provide a second entrance/exit taxilane. The west side taxilane is planned as a phased project over time. In the long term, the west taxilane is planned to be connected to the main apron. Once the center taxilane is converted to the airport entrance road, both the east and west taxilanes will have a single entrance and exit point.

When converting the existing center taxilane to the airport entrance road, new fencing will be needed and is included as part of this project. One hangar opens toward the center taxilane. For the taxilane to be used as a road, this hangar will need to be reconfigured to open to the north.

The FAA recommends that airports update their master plan every seven to ten years. A line item has been reserved for this planning project.

The RPZ for Runway 27 extends off airport property. The airport owns an easement over the property. The FAA recommends that the airport own RPZ lands outright where possible. If funds become available, the airport should acquire the 11 acres of property.

Recent FAA design guidelines covering taxiway intersections with runways recommend 90-degree threshold entrances. A long term project for the airport is to redesign the intersection of Taxiway A at the Runway 27 threshold. As this is a low activity runway, it is a low priority project considered for the long term.

Once the center taxilane is converted to the airport entrance road, the existing aircraft wash rack will be quite removed from many of the hangars. Therefore, a more centrally located wash rack is planned. An oil separator is also planned

which provides a dedicated location for aircraft owners to change the aircraft oil and to dispose of it properly.

A second restroom facility is planned on the east side of the hangar development area. This restroom is desired only after the central taxiway is converted to the airport entrance road. The second restroom would allow tenants on the east side of the airport direct restroom access. This project would be entirely locally funded.

The final project considered in the long term planning period is a dedicated general aviation terminal building. The purpose of a dedicated facility would be to centralize general aviation services and to present a formal aviation entrance to the city. Currently, these services are provided by the FBO at their offices in the WWII era hangar.

The terminal building should be centrally located on the flightline. One potential location would be west of the fuel farm with direct access from both runways. A second potential location would be south or slightly east of the WWII era hangar. Any space reserved for hangar development on the flightline could be utilized for a terminal building.

Even with regular maintenance, airport pavements will deteriorate over time. Currently, the runway pavements are in excellent condition. A major rehabilitation of the runway is not anticipated until the long term planning period. A two inch mill and asphalt overlay of the runways is planned for the long term planning period.

The long term projects total approximately \$10.91 million, of which approximately \$8.36 million is eligible for FAA funding.



Approximately \$2.55 million would be the responsibility of the airport sponsor.

## **CAPITAL IMPROVEMENT SUMMARY**

The CIP is intended as a road map of airport improvements to help guide the airport sponsor, the FAA, and the state aviation division on needed projects. The plan as presented will meet the forecast demand over the next 20 years and, in many respects, beyond. The first five years of the CIP are separated into yearly installments, and the intermediate and long term projects are grouped together. It should be noted that the sequence of projects will likely change due to availability of funds or changing priorities. Nonetheless, this is a comprehensive list of capital projects the airport should consider in the next 20 years.

The total 20-year CIP proposes approximately \$24.74 million in airport development. Of this total, approximately \$20.17 million would be eligible for FAA grant funding. The local funding requirement for the proposed 20-year CIP is \$4.57 million.

## **CAPITAL IMPROVEMENT FUNDING SOURCES**

There are generally four sources of funds used to finance airport development: airport cash flow, revenue and general obligation bonds, federal/state/local grants, and passenger facility charges (PFCs), which are reserved for commercial service airports. Access to these sources of financing varies widely among airports, with some large airports maintaining substantial cash reserves and most small commercial service and general aviation

airports often requiring subsidies from local and state governments to fund operating expenses and to finance modest improvements.

Financing capital improvements at the airport will not rely solely on the financial resources of the airport or the city. Capital improvement funding is available through various grant-in-aid programs on both the state and federal levels. Historically, Corvallis Municipal Airport has received federal and state grants. While some years more funds could be available, the CIP was developed with project phasing in order to remain realistic and within the range of anticipated grant assistance. The following discussion outlines key sources of funding potentially available for capital improvements at Corvallis Municipal Airport.

## **FEDERAL GRANTS**

Through federal legislation over the years, various grant-in-aid programs have been established to develop and maintain a system of public use airports across the United States. The purpose of this system and its federally based funding is to maintain national defense and to promote interstate commerce. The most recent legislation affecting federal funding was enacted on February 17, 2012 and is titled, the *FAA Modernization and Reform Act of 2012*.

The law authorizes the FAA's Airport Improvement Program (AIP) at \$3.35 billion for fiscal years 2012 through 2015. Eligible airports, which included those in the *National Plan of Integrated Airport Systems* (NPIAS), such as Corvallis Municipal Airport, can apply for airport improvement grants. **Table 6B** presents the approximate distribution of the AIP funds.

Corvallis Municipal Airport is eligible to apply for grants which may be funded through state apportionments, the small airport fund, and/or discretionary categories.

Funding for AIP-eligible projects is undertaken through a cost-sharing arrangement in which FAA provides up to 90 percent of the cost and the airport sponsor invests the remaining 10 percent. In exchange for this level of funding, the airport sponsor is required to meet various grant assurances, including maintaining

the improvement for its useful life, usually 20 years.

The source for AIP funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Aviation Trust Fund also finances the operation of the FAA. It is funded by user fees, including taxes on airline tickets, aviation fuel, and various aircraft parts.

<b>TABLE 6B Federal AIP Funding Distribution</b>		
<b>Funding Category</b>	<b>Percent of Total</b>	<b>Funds*</b>
<b>Apportionment/Entitlement</b>		
Passenger Entitlements	29.19%	\$977,865,000
Cargo Entitlements	3.00%	\$100,500,000
Alaska Supplemental	0.65%	\$21,775,000
State Apportionment for Nonprimary Entitlements	10.35%	\$346,725,000
State Apportionment Based on Area and Population	9.65%	\$323,275,000
Carryover	10.77%	\$360,795,000
<b>Small Airport Fund</b>		
Small Hubs	1.67%	\$55,945,000
Nonhubs	6.68%	\$223,780,000
Nonprimary (GA and Reliever)	3.34%	\$111,890,000
<b>Discretionary</b>		
Capacity/Safety/Security/Noise	11.36%	\$380,560,000
Pure Discretionary	3.79%	\$126,965,000
<b>Set Asides</b>		
Noise	8.40%	\$281,400,000
Military Airports Program	0.99%	\$33,165,000
Reliever	0.16%	\$5,360,000
<b>Totals</b>	<b>100.00%</b>	<b>\$3,350,000,000</b>
* FAA Modernization and Reform Act of 2012 AIP: Airport Improvement Program Source: FAA Order 5100.38C, Airport Improvement Program Handbook		

### Apportionment (Entitlement) Funds

Federal AIP funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to primary commercial service

airports based upon minimum enplanement levels of at least 10,000 passengers annually. Other entitlement funds are distributed to cargo service airports, states and insular areas (state apportionment), and Alaska airports.

General aviation airports included in the NPIAS can receive up to \$150,000 each year in Non-Primary Entitlement (NPE) funds. These funds can be carried over and combined for up to four years, thereby allowing for completion of a more expensive project. In the past, Corvallis Municipal Airport has received NPE funding.

The states also receive a direct apportionment based on a federal formula that takes into account area and population. The states can then distribute these funds for projects at various airports throughout the state. The Oregon Department of Aviation primarily distributes these funds to provide on-going pavement maintenance at airports throughout the state.

### **Small Airport Fund**

If a large or medium hub commercial service airport chooses to institute a passenger facility charge (PFC), which is a fee of up to \$4.50 on each airline ticket, for funding of capital improvement projects, then their apportionment is reduced. A portion of the reduced apportionment goes to the small airport fund. The small airport fund is reserved for small-hub primary commercial service airport, non-hub commercial service airports, and general aviation airports.

### **Discretionary Funds**

The remaining AIP funds are distributed by the FAA based on the priority of the project for which they have requested federal assistance through discretionary apportionments. A national priority ranking system is used to evaluate and rank each airport project. Those projects with the highest priority from airports across

the country are given preference in funding. High priority projects include those related to meeting design standards, capacity improvements, and other safety enhancements.

Under the AIP program, examples of eligible development projects include the airfield, public aprons, and access roads. Additional buildings and structures may be eligible if the function of the structure is to serve airport operations in a non-revenue generating capacity, such as maintenance facilities. Some revenue-enhancing structures, such as T-hangars, may be eligible if all airfield improvements have been made but the priority ranking of these facilities is very low.

Whereas entitlement monies are guaranteed on an annual basis, discretionary funds are not assured. If the combination of entitlement, discretionary, and airport sponsor match does not provide enough capital for planned development, projects may be delayed.

### **Set-Aside Funds**

Portions of AIP funds are set-asides designed to achieve specific funding minimums for noise compatibility planning and implementation, select former military airfields (Military Airport Program), and select reliever airports. Corvallis Municipal Airport does not qualify for set-aside funding.

### **FAA Facilities and Equipment (F&E) Program**

The Airway Facilities Division of the FAA administers the Facilities and Equipment (F&E) Program. This program provides funding for the installation and maintenance



nance of various navigational aids and equipment of the national airspace system. Under the F&E program, funding is provided for FAA Airport Traffic Control Towers (ATCTs), enroute navigational aids, on-airport navigational aids, and approach lighting systems.

At Corvallis Municipal Airport, several navigational aids including the ILS and VASIs are owned and maintained by the FAA. Maintenance of this navigational equipment is funded through the F&E program.

While F&E still installs and maintains some navigational aids, on-airport facilities at general aviation airports have not been a priority. Therefore, airports often request funding assistance for navigational aids through AIP and then maintain the equipment on their own.

## **STATE AID TO AIRPORTS**

The State of Oregon recognizes the valuable contribution to the state's transportation economy that airports make. Therefore, the Oregon Department of Aviation administers several programs to maintain airports in the state.

### **Oregon Department of Aviation**

#### *Pavement Maintenance Program (PMP)*

The PMP program is a state-funded aid program intended to assist airports in undertaking preventative maintenance. A local match is required depending on the category of the airport as defined in the *Oregon Aviation Plan*. The most recent recommended match for an Urban General Aviation airport, such as Corvallis Municipal Airport, was 25 percent. In ad-

dition, the Oregon Department of Aviation (through a subcontractor) inspects 66 Oregon airports, including Corvallis Municipal Airport, for pavement condition. This database of information helps airports meet FAA grant assurances for maintaining airport pavements.

#### *Financial Aid to Municipalities (FAM)*

The Oregon Department of Aviation's *FAM Grant Program* is designed to fund planning, development, and capital improvements at airports across the state. Oregon municipalities meeting certain criteria are eligible to apply for these grants. These grants are capped at \$25,000 and can be used for matching FAA grants or other projects not generally eligible for FAA funding.

### **ConnectOregon**

*ConnectOregon* is an initiative first introduced in 2005 by the Oregon Legislature to invest in air, rail, marine, and transit infrastructure. The program is focused on improving the connections between the highway system and other modes of transportation to better integrate the multi-modal system, improve the flow of commerce, and remove delays. The first installment of this program (*ConnectOregon I*) provided \$100 million for 43 projects. The program was renewed at similar funding levels in both 2007 (*ConnectOregon II*) and 2009 (*ConnectOregon III*). The *ConnectOregon* program was renewed in 2011 with an allocation of \$40 million.

While *ConnectOregon III* included a commitment to set aside at least five percent of the total for rural airports in the state, *ConnectOregon IV* did not have this provi-

sion. Therefore, aviation projects are now competing with all other applicants for development funds. A local match of 20 percent is required if a grant application is approved.

Funding for the program is from lottery-based bonds, sold by the Oregon Department of Administrative Services, deposited into Oregon's Multimodal Transportation Fund, and administered by the Oregon Department of Transportation Local Government Section. Projects eligible for Oregon's Highway Fund are not eligible for *ConnectOregon*, which gives aviation projects less competition for funding (Oregon Department of Aviation).

Of the 43 projects funded under *ConnectOregon* I, 10 were aviation projects. Projects included runway relocation, runway extension, air cargo facilities, maintenance facilities, terminal improvements, and aircraft services and fueling. Funding also went to a multi-region project of installing Automatic Dependent Surveillance – Broadcast (ADS-B) transceivers at various airports in the state. *ConnectOregon* II received 70 applications of which 30 were approved. Ten of the 30 were aviation-related projects. *ConnectOregon* III received 80 applications. Ten of the 41 approved projects were aviation-related.

A total of 65 applications were received for *ConnectOregon* IV development funds. The total funds requested are nearly \$78 million. As discussed in Chapter One – Inventory, the City of Corvallis has submitted three *ConnectOregon* IV grant applications for a total of \$1,739,000. The projects are 1) Air Terminal Rehabilitation, 2) Air Freight Transfer Facility, and 3) Airport Industrial Park Rail Spur Rehabilitation. Twenty-eight of the 65 applications are for aviation-related projects. *ConnectOregon* IV projects are to be an-

nounced in June 2012. None of the projects for Corvallis Municipal Airport were funded through *ConnectOregon* IV.

## LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. The goal of the airport is to generate enough revenue to cover all operating and capital expenditures, if possible. As with many general aviation airports, this is not always possible and other financing methods may be needed.

There are several alternatives for local financing options for future development at the airport, including airport revenues, direct funding from the airport sponsors, bonds, and leasehold financing. These strategies could be used to fund the local matching share, or complete a project if grant funding cannot be arranged.

There are several municipal bonding options available, including general obligation bonds, limited obligation bonds, and revenue bonds. General obligation bonds are a common form of municipal bond which is issued by voter approval, is secured by the full faith and credit of the community, and future tax revenues are pledged to retire the debt. As instruments of credit and because the community secures the bonds, general obligation bonds reduce the available debt level of the community. Due to the community pledge to secure and pay general obligation bonds, they are the most secure type of municipal bond and are generally issued at lower interest rates and carry lower costs of issuance. The primary disadvantage of general obligation bonds is that they require voter approval and are subject to statutory debt limits. This re-

quires that they be used for projects that have broad support among the voters, and that they are reserved for projects that have the highest public priorities.

In contrast to general obligation bonds, limited obligation bonds (sometimes referred to as self-liquidating bonds) are secured by revenues from a local source. While neither general fund revenues nor the taxing power of the local community is pledged to pay the debt service, these sources may be required to retire the debt if pledged revenues are insufficient to make interest and principal payments on the bonds. These bonds still carry the full faith and credit pledge of the local community and are considered, for the purpose of financial analysis, as part of the debt burden of the local community. The overall debt burden of the local community is a factor in establishing interest rates on municipal bonds.

There are several types of revenue bonds, but in general, they are a form of municipal bond which is payable solely from the revenue derived from the operation of a facility that was constructed or acquired with the proceeds of the bonds. For example, a lease revenue bond is secured with the income from a lease assigned to the repayment of the bonds. Revenue bonds have become a common form of financing airport improvements. Revenue bonds present the opportunity to provide those improvements without direct burden to the taxpayer. Revenue bonds normally carry a higher interest rate because they lack the guarantees of general and limited obligation bonds.

Leasehold financing refers to a developer or tenant financing improvements under a long term ground lease. The obvious advantage of such an arrangement is that it relieves the community of all responsibility for raising the capital funds for im-

provements. However, the private development of facilities on a ground lease, particularly on property owned by a government agency, produces a unique set of concerns.

In particular, it may be more difficult to obtain private financing as only the improvements and the right to continue the lease can be claimed in the event of a default. Ground leases normally provide for the reversion of improvements to the airport at the end of the lease term, which reduces their potential value to a lender taking possession. Also, companies that want to own their property as a matter of financial policy may not locate where land is only available for lease. Hangar development, other than T-hangars, is assumed to be undertaken by private developers.

## **LOCAL FINANCIAL CONSIDERATIONS**

The balance of project costs, after consideration has been given to grants, must be funded through local resources. According to the 20-year capital improvement program outlined for the airport, local funding will be needed in each planning horizon.

The operation of the airport generates revenues, which are secured by federal grant assurances to be utilized at the airport. While the revenues generated are significant, they are oftentimes not enough to fund both airport operating expenditures and capital improvement requirements. Most general aviation airports in the country do not generate enough revenues to cover operating expenses. Nearly all need some level of community tax or bonding support to fund operations and capital expenditures.

There are several alternatives for local finance options for future development at



the airport, including airport revenues, direct funding from the city, issuing bonds, and leasehold financing. These strategies could be used to fund the local matching share or complete the project if grant funding cannot be arranged.

The airport is owned by the City of Corvallis and conducts its daily operations through the collection of various rates and charges. These revenues are generated specifically by airport operations. There are, however, restrictions on the use of revenues collected by the airport. All receipts, excluding bond proceeds or related grants and interest, are irrevocably pledged to the punctual payment of operating and maintenance expenses, payment of debt service for as long as bonds remain outstanding, or for additions or improvements to airport facilities.

All general aviation airports should establish standard basis rates for various leases. All lease rates should be set to adjust to a standard index such as the Consumer Price Index to assure that fair and equitable rates continue to be charged into the future. Many factors will impact what the standard lease rate should be for a particular facility or ground parcel. For example, ground leases for aviation-related facilities should have a different lease rate than for non-aviation leases (e.g., Airport Industrial Park). Since the city owns some hangars, a separate facility lease rate should be charged. The lease rate for any individual parcel or hangar can vary

due to availability of utilities, condition, location, and other factors. Nonetheless, standard lease rates should fall within an acceptable range. In addition, the airport should charge a fuel flowage to the fuel distributor for the right to dispense fuel at the airport.

At Corvallis Municipal Airport, a ground lease for aviation space is currently \$0.24 per square foot per year. For non-aviation ground leases, such as in the Airport Industrial Park, the rate is \$0.12 per square foot per year. These rates are reasonable and comparable to rates charged at similar general aviation airports. The fuel flowage fee is \$0.05 per gallon. This rate is acceptable but at the lower end of the scale when compared to other general aviation airports.

The airport also leases certain facilities, such as the WWII era hangar and a small building, in the Airport Industrial Park. The rates charged for these facilities are reasonable. Fees for city-owned T-hangars and for outside aircraft tie-down positions are standardized and are reasonable.

**Table 6C** presents the projected operating revenue and expenses for the airport. The airport receives income from various sources including lease income, hangar rentals, crop sales, fuel sales, and other miscellaneous revenue. Federal and state grants received are not considered airport revenue from an operating perspective.

<b>TABLE 6C</b> <b>Projected Operating Revenue/Expenses</b> <b>Corvallis Municipal Airport</b>				
	<b>Fiscal '10-11</b>	<b>Fiscal '11-12</b>	<b>Fiscal '12-13</b>	<b>Fiscal '13-14</b>
<b>REVENUE PROJECTIONS</b>				
Lease Income	\$240,000	\$260,000	\$265,330	\$270,770
Hangar Rental	\$75,000	\$84,000	\$85,680	\$87,390
Crop Sales	\$40,000	\$89,000	\$89,000	\$89,000
Gasoline Sales	\$10,000	\$8,500	\$8,760	\$9,020
Misc Revenue	\$7,000	\$7,000	\$7,000	\$7,000
Licenses and Permits	\$5,000	\$2,500	\$2,500	\$2,500
<b>Total Revenue</b>	<b>\$377,000</b>	<b>\$451,000</b>	<b>\$458,270</b>	<b>\$465,680</b>
<b>EXPENSE PROJECTIONS</b>				
Personnel Services	\$144,670	\$169,880	\$171,270	\$179,470
Supplies and Services	\$168,180	\$167,030	\$170,220	\$173,500
Debt Service	\$33,000	\$33,000	\$33,000	\$33,000
<b>Total Expenses</b>	<b>\$345,850</b>	<b>\$369,910</b>	<b>\$374,490</b>	<b>\$385,970</b>
<b>NET OPERATING P&amp;L</b>	<b>\$31,150</b>	<b>\$81,090</b>	<b>\$83,780</b>	<b>\$79,710</b>
<i>Source: Corvallis Public Works - Services Summary - Airport Fund, January 2011. Interviews with airport management.</i>				

*Lease Income (Building and Land Rental).* Industrial park and airport tenants have leases with terms from 5 to 50 years, with most leases adjusted based on the Consumer Price Index. The time interval for the adjustment varies depending on the lease. This is the largest source of revenue to the Airport Fund and is expected to grow as more property becomes available with infrastructure improvements, with listing on the Governor's Certified Industrial Sites list, and with inclusion in the Benton-Corvallis Enterprise Zone.

*Hangar Rental.* People who store their aircraft in the city-owned hangars at the airport pay a monthly rent. Some turnover occurs, but overall this is a steady revenue stream.

*Crop Sales.* The city receives a portion of the revenue from the sale of crops that are grown on airport property. Revenues fluctuate with the size of the crop and market conditions; therefore, an average amount is projected for the planning window. The city works with the contract farmer to investigate the need to change

crops to match changing markets and to maximize the revenue per acre.

*Gasoline Sales.* Fuel is consumed by the fixed base operator (FBO) for their own use or sold to other airport users. For every gallon of fuel sold, the city receives a fuel flowage fee of \$0.05. About 95 percent of the airports in Oregon handle fuel sales this way, with fees ranging from \$0.03 to \$0.12 per gallon.

*Miscellaneous Revenue.* Various law enforcement agencies use the airport facilities for driver training on the closed runway.

*Licenses and Permits.* With traffic increasing from larger commercial airplanes, the city implemented a landing fee. Companies are charged monthly based on the number of landings and the type of aircraft.

On the expense side of the ledger, the airport has personnel expenses, supplies and material expenses, and on-going debt service expenses.

*Personnel Services.* Wages and benefits paid to several city employees with responsibility for the airport are accounted for in the airport fund. Approximately 65 percent of the airport manager's compensation, 20 percent of the airport manager's supervisors' compensation, and 15 percent of administrative staff compensation is expensed to the airport. The airport also has a part-time maintenance person which is funded through the airport fund.

*Supplies and Services.* This expense category is the operating budget for the airport. It includes payment for materials, supplies, utilities, training, and insurance.

*Debt Service.* The airport has only one outstanding loan which required annual debt service payments of approximately \$33,000. The loan was taken in 1996 in the amount of \$274,000 at a six percent interest rate for a term of 20 years. The loan was taken to fund extension of water and sewer lines to the Airport Industrial Park. The final payment will be in 2017.

## **Financial Summary**

The above financial discussion is intended to show that the operation of Corvallis Municipal Airport meets various requirements and goals set forth by the FAA.

**Grant Assurance #24 – Fee and Rental Structure:** Requires the airport sponsor to set fee, lease rates, and other charges that are directed at making the airport as self-sustaining as possible. Airport sponsors must impose fair market value charges for noncommercial uses of airport property, but aeronautical user charges may be less than fair market value. As demonstrated, the fee and rental

structure for airport property and facilities is fair and equitable.

**Grant Assurance #25 – Airport Revenues:** Restricts the use of airport revenue generated by the airport and local taxes on aviation fuel to be expended for the capital or operating costs of the airport, the local airport system, or other facilities owned or operated by the airport sponsor, which directly and substantially relate to the actual air transportation of passengers or property or noise mitigation efforts. Under the *Single Audit Act of 1984*, the airport must conduct an annual audit and assure the government that airport funds have been properly used. In general, revenue generated by the airport may not be diverted to functions unrelated to the operation and maintenance of the airport. Examples of revenue diversion include:

- a) General economic development;
- b) Marketing and promotional activities unrelated to the airport;
- c) Payments in lieu of taxes or other assessments that exceed the value of services;
- d) Payments to compensate sponsoring governmental bodies for lost tax revenues exceeding stated tax rates; and
- e) Direct or indirect payments of airport revenue beyond that which is required to pay for services and facilities provided to the airport.

The city maintains a separate airport fund within the Public Works department for accounting of airport revenues and expenses.

Finally, unlike the majority of general aviation airports, Corvallis Municipal Airport is operating in a positive cash flow situation. A significant contributor is the fact that there are 32 acres of leased property in the Airport Industrial Park. The presence of the Airport Industrial Park is a significant asset for the airport.

## ***SUMMARY***

The best means to begin implementation of the recommendations in this master plan is to first recognize that planning is a continuous process that does not end with completion and approval of this document. Rather, the airport should implement measures that allow them to track various demand indicators, such as based aircraft and operations, as well as those times when the main apron is full. Operations, particularly by business jets, will be important when providing justification for several projects in the future. The issues upon which this master plan is based will remain valid for a number of years. The primary goal is for the airport to best serve the air transportation needs of the region, while continuing to be economically self-sufficient.

The actual need for facilities is most appropriately established by airport activity levels rather than a specified date. For example, projections have been made as to when additional hangars may be needed at the airport. In reality, however, the timeframe in which the development is needed may be substantially different.

Actual demand may be slower to develop than expected. On the other hand, high levels of demand may establish the need to accelerate development. Although every effort has been made in this master planning process to conservatively estimate when facility development may be needed, aviation demand will dictate when facility improvements need to be delayed or accelerated.

The real value of a usable master plan is in keeping the issues and objectives in the minds of the managers and decision-makers so that they are better able to recognize change and its effect. In addition to adjustments in aviation demand, decisions made as to when to undertake the improvements recommended in this master plan will impact the period that the plan remains valid. The format used in this plan is intended to reduce the need for formal and costly updates by simply adjusting the timing. Updating can be done by the manager, thereby improving the plan's effectiveness.

In summary, the planning process requires the airport management to consistently monitor the progress of the airport in terms of aircraft operations and based aircraft. Analysis of aircraft demand is critical to the timing and need for new airport facilities. The information obtained from continually monitoring airport activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.